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Microphone Techniques

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Few singers practice their microphone technique enough, which results in some fantastic voices being overlooked due to poor sound quality or bad technique when performing live.

How do you prevent this without the aid of a sound engineer or years of experience? Simple! - Practice makes perfect and if you have the facilities to set up a P.A. and tape recorder at home or use a rehearsal studio you have a distinct advantage!! Even if you don't have this equipment, you can still experiment with amplified sound by using your home stereo or karaoke machine and a microphone. The quality may be extremely poor and muffled (depending on how good the system), but you should still be able to get a basic idea of mic positioning and distance with a little practice.

Obvious points to remember when using amplification of any kind:

Pointing the microphone towards a speaker when you are too close causes a high pitched noise called FEEDBACK.

Having the volume too high will cause FEEDBACK and DISTORTION.

Incorrect wiring & connections can cause electric shocks, equipment breakdowns, horrible humming or even pick up the radio!

The most common mistake is holding the microphone too close or too far from your mouth. This results in your singing sounding muffled and distorted, too distant or no vocal sound at all. With a little practice this is easy to rectify and should become a part of your rehearsal routine.

Set your volume controls so that the backing track is lower than your singing.

To avoid distortion, ensure the mic is held no closer than 2 to 3 inches from your mouth during normal singing. You will have to experiment a little as the distance is dependant on the individuals natural power and ability to project.

Gradually move the microphone away as you continue to sing and listen to the effect - at what point does the vocal sound start to fade? - That is your furthest point to remember. The optimum distance for clarity is between the shortest and furthest points.

There are times when you will be using more volume, hitting higher or lower notes or almost whispering. Practice using different distances and positions to see how using the mic creates different effects.

Avoid moving the microphone closer to your mouth when aiming for high or more powerful notes and practise using the microphone to enhance or lessen certain effects until it becomes second nature.

Hiding Faults

Microphones can be used effectively to hide as well as enhance a singers faults. One of the most common techniques used to hide a lack of sustained breath control is to hold the microphone away from you when starting a sustained note and bringing it closer to the mouth as the note diminishes. To the audience the note appears to maintain it's volume, although it is important to keep on pitch and not attempt to hold the note for longer than is comfortable!

The distance and placement of the microphone also affects the sound and tone of the voice as heard by the listener. Some microphones are designed to pick up sound from any direction, (known as omni-directional) others are designed to pick up sound from a limited area. There are several different microphone types, referred to as dynamic, cardoid, supercardoid, condenser.... to learn about these in more depth read the DAT-Heads FAQ and articles listed further down the page.

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Vocal Effects

Using a microphone allows the singer to employ various vocal effects to enhance a recording or performance including: Adjusting airflow through the nose, opening the throat to provide more resonance, glottal attack, soft-palate edge (with vibration of the uvula), good enunciation and diaphragmatic pulsation (like a pant).

Avoiding Pop's & Hisses

Certain consonants create sounds that when electrically amplified become abrasive or detract from the intended effect. B's & P's can sound over-exaggerated causing a 'pop', whilst the natural sibilance of C, S & Z can produce a hissing sound. These are problems that can be avoided by using a combination of correct [diction](#) and [mic technique](#).

When using a microphone for the first time, the natural instinct is to place it in right in front of your mouth, but with today's technology, most microphones are extremely sensitive and capable of picking up sound from any direction, moving the microphone further from your mouth, angling it to one side or lowering the mic and angling it more towards the ceiling will lessen the sensitivity by just enough to prevent the pops and hisses, the adjustment can be quite fine depending on the EQ & gain settings plus equipment type and quality.

Common Problems with Microphones

Despite improvements in technology, Radio microphones can be the cause of many a singer's nightmares with mini cab or police transmissions blasting out over the speakers, cut outs and dodgy batteries causing distortion. Small microphones attached to clothing can easily work loose causing loss of sound and even hand held radio mic's left on while backstage can pick up discussions or noises that you would rather remain private! Even the humble lead mic if left on in a stand will pick up footsteps or other loud vibrations from the stage and floor. If using a radio mic, always use check the batteries before use, keep a couple of spare batteries handy, make sure arials or leads are not twisted or bunched up and have a lead mic available in your kit bag for emergencies. Switch off all microphones during breaks or when not in use.

Which Mic?

Everyone has their own personal preference, but omni-directional microphones are pretty common for live work and although they lack the sensitivity of some other microphones, they have the advantage of being robust and capable of picking up sound from any direction. There are lead and wireless versions, both of which can be hand-held or placed in a stand. Head-set mic's are useful for dancers or singers who want to have complete freedom of movement but are 'fixed' in front of or to one side of the mouth, this means that the singer is unable to manipulate the microphone.

Before purchasing a microphone it is worth trying out several types. A mic that makes one singer sound great can make another sound bassy or tinny and although this may be due in part to the EQ settings or effects used, it can also be due to the microphone response. Most recording studios carry several microphones to cater to all types of vocalist and singer/songwriters may find that purchasing a microphone for 'live' performance and one for 'recording' solves a few clarity problems.

Personal fav's include the Shure SM58 (shown below) and [Trantec](#) Radio Mic (twin arial).



[Shure SM58 \(SM58-LC\)](#)

Cardioid dynamic vocal microphone. 50 to 15,000 Hz.

Consistently the first choice of professional performers around... Discover a range of microphones at [Christmas Crackers - Musical Gifts](#).

[Dat-Heads FAQ Microphone Edition](#)

This is a collection of information of potential interest to users of microphones, especially those who use them to record live musical performances. The information was contributed by the users of the DAT-Heads mailing list.



The Home Studio Guide to Microphones

Loren Alldrin, George Petersen, Michael Molendra

Here's a hint: it's not in your latest 24-bit effects processor or whiz-bang digital recorder. Instead, great recordings start with the right microphone positioned well. Sound simple? It is. - In The Home Studio Guide to Microphones, you'll learn how mics work, how they differ and which mic to use when. Plus, you'll learn how to best record dozens of popular

instruments. Finally, an extensive buyer's guide gives you specs and application info on over 70 popular mics.

[Home Studio Guide to Microphones at Amazon UK](#)

[Home Studio Guide to Microphones at Amazon USA](#)

Also Read

[What Does It Mean to have Good Mic Technique by Taxi](#)

Related Articles & Sites

These are a small selection available in our [Articles](#). All links open in a new window.

[20 Tips on using Microphones](#)

It doesn't matter how good the microphone, put it in the wrong place and you might as well be using cocoa tins and string. Hugh Robjohns shares some of his top tips...from Sound On Sound Magazine.

[Basic Microphone Techniques](#)

Provides an overview on microphone placement for recording vocals by The Musician's Homepage.

[Capacitor Microphones Explained](#)

Paul White from Sound on Sound Magazine looks at the workings of capacitor mics and discusses their advantages for studio recording.

[How do microphones work, and why are there so many different types?](#)

A guide for the complete beginner from How Stuff Works.

[M-Audio](#)

The Record Now Mic Guide is now available for Free Download! Volume 1 of the Record Now Series, "Choosing & Using Microphones," is a necessary tool for musicians to make informed choices about music technology and application. Download the tutorial at no cost today. Visit the site to read the tutorials or download .pdf file. To get the guide enter the keywords 'Mic Guide' into the search box located in the top right hand side of the page.

[Mic Types & Characteristics](#)

article by Paul White from Sound on Sound providing explanations and descriptions of each type of microphone.

[Microphone FAQ](#)

A review of the different techniques used to record ambient sounds in stereo, covering common configurations using two, three and four microphones. Provided by Oade Brothers Audio, Inc.

[Microphone Techniques & Soundstage Maps](#)

Textual Description of equipment, set up and resulting sound which was included as a sound sample on the CD accompanying the magazine (no sample on site). Article at Stereophile Magazine by John Atkinson & Robert Harley.

[Microphone Tutorial](#)

An introduction to microphones with explanations of microphone types, pick up patterns, microphone and studio techniques for musicians, singers and budding sound engineers. Article from Digital Music World by Yamaha.

[Microphones and Microphone Technique](#)

Advice for beginners plus article on band sound checks from engineer Peter Davies.

[MusicStudioTechniques](#)

contains valuable information about recording engineering, mixing, audio technology, microphone choice, and microphone placement techniques to achieve a variety of desired sounds with specific instruments. Visit their Techniques section to read the articles which include descriptions of various models of the Sennheiser, Shure, Electro-Voice, Beyerdynamic, and Neumann ranges of microphones.

[Online Classes](#)

Articles studying examples of sound system and microphone applications for speakers and singers plus how to get the best results. Produced by The Internet Sound Institute helping you learn about sound systems.

[Sennheiser Evolution Series Microphones](#)

Useful article by freelance audio engineer Andrew Roberts comparing the various uses, responses and pricing of the Sennheiser Evolution range.

[Stereo Microphone Techniques](#)

Article explaining the uses and set up of stereo microphone techniques for singing

ensembles and soloists by Bruce Bartlett at Tape.com

[Using Microphones](#)

A basic guide to using microphones from Audio Technica which includes the differences between various types of microphones and the advantages of important microphone features and A Brief Guide to Microphone Selection and Use for Places of Worship

[Transom Mic Shootout - Blindfold Test](#)

Write up from a mic shootout which compared a wide variety of announce mics in a neutral setting from Transom Tools.

[Transom Handheld Mic Shootout](#)

Part two of this shootout from Transom Tools compares a range of handheld microphones.

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